November-07-12	2 1:23:01 PN	1	1. A.	97	//4		•		Page II
Item ID: Revision ID:	646.3315			Accept	*N900	*NS1*			
Item Name:	Blade				·			Stop	*NC2*
Start Date: Required Date: Reference:	07/11/2012 21/11/2012	Start Qty: 10.00 Req'd Qty: 10.00	*10* *10*		Cust Item I Customer:	D:			
Approvals:	Process Pla	in: MLJ	Date: 12-11-07	Tooling:	D:	ate:	. I	Run Start	*NR1*
	QC:		Date:	SPC (Y/N):	D:	ate:		Stop	*NR2*
Sequence ID/ Work Center II		Operation Description		Set Up/ Run Hours	Tool ID	Tool # Plan Code	Accept Qty	Reject Qty	Reject Insp. Number Stamp
Draw Nbr	Rev	ision Nbr							
646.3300	N/C				•	•			
*100 *100*	-	BAND SAW		0.00	_	1. 1.			
Bandsaw Jeaspa Bandsaw		Memo Cut Blank a	t 2.600"	0.00	Ofcas 12	/11/13	/0	φ	
110		· .		0.00					
110 HAAS 1 HAAS CNC vertical	machine #1	HAAS CNC VERTICAL Memo I-Machine p DWG REV: FOLIO REV	per folio FB147	0.00	and 12/11/	15	10	_ D	14

²⁻ deburr and break all sharp edges except otherwise noted

VCR:	Yes	1	Nο

WORK ORDER NON-CONFORMANCE / UPDATE

DQA:	Date:	
QA Closed:	Date:	*
ARTMENT/PRO	OCESS	:
	Vater Jet E	ngineering Quality

											QA Closed:	Date	•
Work Orde	er:					DISPOSITION	1			AGAINST DE	PARTMENT	/PROCESS	
Part No						Rework Scrap Use-as-is Work Order Update		Skid-tube Crosstube Machining Small Fab Thermoforming Finishing Large Fab Composite			1	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root					Descri	ption of work order update	ln	itial	Act	tion	Sign &		
Cause		Date	Step	Qty	(or Non-conformance	Chie	ef Eng	Desci	ription	Date	Verification	QC Inspector
Doc/Data Equip/Tooling Operator													
Material													
Setup													
Other						•							
Process			j										
Supplier													
Training	_												
Unapproved	L			L									
							AULT	CATE	GORY				
Landi		7				General					-		_
	┝	Bending				Bend	-	Grain			Ovalized		Pressure/Forced
ر م	⊢	Centre No	ot Concer	ntric to	o/s	BOM/Route	\vdash	Hardwa			Over/Under	<u> </u>	Temperature/Cure
	-	Cracks				Broken/Damaged	\vdash	-	on Incomplete	·	Part Incorre	ct	Weld
		Crushed/0	Crimped.			Burrs		nstruct	ions Incomplete/I	Unclear	Part Lost/Mi	issing	Wrong Stock Pulled
		Cuffs				Contamination		Mainte	nance		Part Moved		
	Heat Treat Coun			Countersink	Ш١	Mislabe	led		Positioned V	Vrong	_		
,	Inspection Strip in Tube				Cut Too Short	Ш	Misread	İ		Power Loss/	Surge	Other	
Ripples in Bend			Drill Holes	Щ	Offset								
		Torque W	aves in E	xtrusio	n _	Drawing		Out of 0	Calibration				
		Turning S	equence			Finish		Out of S	Sequence				
	Wave/Twist in Tube Folio				Folio		Outside	Dimensions					

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November-07-12 1:23:01 PM

Required Date: 21/11/2012

Item ID: 646.

646.3315

Accept

N900040100

Setup Start *NS1

Stop *NS2*

Revision ID: Item Name:

Start Date:

Blade

07/11/2012 Start Qty: 10.00

Reg'd Otv: 10.00

10 *10*

Cust Item ID:

Customer:

Reference:

Approvals:	Process Plan: QC:	Date:	Tooling: SPC (Y/N):		te:		R	tun Sta Sto	*IV	R1* R2*
Sequence ID/ Work Center II	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Oty	Reject Oty	Reject Number	Insp. Stamp
120	QC2- Inspect p	parts off machine FAI/FAIB	0.00				X -3	~ ~	rumber	
120	M	emo	0.00	12/11/15	-		/ <u>0</u>	y		0AS 14 -9-89-

Quality Control

QC8- Inspect parts - second check

DAS) 12-11-15

(10

130

QC

130

Memo

0.00

Quality Control

140

Outsource process - Heat Treat

0.00

0.00

140

Outsource l

Memo

0.00

Outsource process - Heat Treat

HEAT TREAT AS PER DWG, SEE NOTE #3

issue p/o: <u>1845</u>2

(X1211/20 (O)

										DQA:	Date	•
NCR: Y	'es	/ No				WORK ORDER NON-C	CONF	ORN	MANCE / UPDATE	QA Closed:	Date	
						r	T			QA Closed.	Date	·
Work Orde						DISPOSITION			AGAINST DI	EPARTMENT,	PROCESS	
WOIK OIGE	- ' -					Rework	1		Skid-tube Crosstube	7	Water Jet	Engineering
Part N	lo.					Scrap			Machining Small Fab	Pro	d. Eng. Coor.	Quality
Turcivo.						Use-as-is	_T		noforming Finishing		e/Packaging	Other
NCR No.						Work Order Update	'		Large Fab Composite	1	Supplier	
						` <u></u>	'		° Ш ' Ц		, ,	-
Root					Descri	ption of work order update	Initi	ial	Action	Sign &		
Cause		Date	Step	Qty		or Non-conformance	Chief	Eng	Description	Date	Verification	QC Inspector
oc/Data												
quip/Tooling												
perator												
/laterial												
etup												
Other •												
rocess												
upplier												
raining	_											
Inapproved				Ĺ								
							AULT C	ATE	GORY			
Landii					_	General				–	_	- , , ,
	-	Bending				Bend		ain	<u> </u>	Ovalized	_	Pressure/Forced
	Centre Not Concentric to O/S BOM/Route					- '	-	rdwa	· -	Over/Under		Temperature/Cure
		Cracks				Broken/Damaged		•	on Incomplete	Part Incorre	<u>}</u>	Weld
	\dashv	Crushed/0	Crimped.			Burrs	\vdash		ions Incomplete/Unclear	Part Lost/Mi	ssing	Wrong Stock Pulled
	—-1	Cuffs			ļ	Contamination	$\boldsymbol{\vdash}$		nance	Part Moved	•	
1	- 1	Heat Trea	t		I	Countersink	I INA	claho	hal	Positioned V	Vrong	j

Misread

Out of Calibration

Out of Sequence

Outside Dimensions

Offset

Other

Power Loss/Surge

Ripples in Bend

Turning Sequence

Wave/Twist in Tube

Inspection Strip in Tube

Torque Waves in Extrusion

Cut Too Short

Drill Holes

Drawing

Finish

Folio

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92774

Page 3

Item ID: Revision ID: Item Name:	646.3315 Blade		. · ·	Accept	*N900	040	100)* s		Start Stop	I VI	S1* S2*
Start Date: Required Date: Reference:	07/11/2012 : 21/11/2012	Start Qty: 10.00 Req'd Qty: 10.00	*10* *10*			Cust Item ID: Customer:					14.	
Approvals:		n:	Date:	Tooling: SPC (Y/N):)ate:		Ą	Run	Start Stop	I <i>Z</i> I	R1* R2*
Sequence ID/ Work Center II 150 *150* Packaging Packaging	D	Operation Description Receive & Inspect for Da Memo	mage & Mat'l Certs	Set Up/ Run Hours 0.00	Tool ID	Tool#	Plan Code	Accept Qty	Reje Qty		Reject Number	Insp. Stamp
155 *155* QC Quality Control		QC5- Inspect part comple	eteness to step on W/O	0.00				_10	·			DAS 1 <u>05</u> 81211
*160 *160* SprayPaint Spray Painting			95 4.2 PER DWG, SEE NOTE #4 ATCH: \23693	0.00				10		Ø	Ø	H 12-12-15

		DQA:	Date:	
ICR: Yes /	WORK ORDER NON-CONFORMANCE / UPDATE	· · · · · · · · · · · · · · · · · · ·		

											QA Closed.	Date	•
Work Orde	er:					DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
Part N	٠ ، ١٥٠				· · · · · · · · · · · · · · · · · · ·	Rework Scrap Use-as-is Work Order Update		Skid-tube Crosstube Machining Small Fak Thermoforming Finishing Large Fab Composite			Water Jet Engineering Prod. Eng. Coor. Quality Rec/Store/Packaging Other Supplier		
Root					Descri	Lption of work order update	Т	nitial	Ac	tion	Sign &		
Cause		Date	Step	Qty		or Non-conformance	1	ief Eng	i	ription	Date	Verification	QC Inspector
Doc/Data		-											
Equip/Tooling													
Operator													
Material													
Setup													
Other													
Process													
Supplier													
Training													
Unapproved			<u> </u>										
						F	AUL	T CATE	GORY				
Landi		ı			,	General		,		_	,		
•	-	Bending				Bend	L	Grain			Ovalized	_	Pressure/Forced
	-	Centre No	t Concer	ntric to	o/s	BOM/Route		Hardwa			Over/Under	tolerance	Temperature/Cure
	${f -}$	Cracks				Broken/Damaged	<u> </u>	1	ion Incomplete		Part Incorre	}	Weld
	-	Crushed/0	Crimped.			Burrs	<u>_</u>	i	tions Incomplete/	'Unclear	Part Lost/Mi	issing	Wrong Stock Pulled
	-	Cuffs				Contamination		Mainte			Part Moved		
	Heat Treat				Countersink	_	Mislabe			Positioned V		_	
	Inspection Strip in Tube				Cut Too Short	ļ	Misrea	d		Power Loss/	Surge	Other	
	Ripples in Bend				Drill Holes		Offset						
	Ш	Torque W			n	Drawing		4	Calibration				
	\vdash	Turning So	· ·			Finish	Out of Sequence						
				Folio	1	loutside	Dimonsions						

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Page 4

November-07-12 1:23:01 PM Item ID: 646.3315 Accept *N900040100* Setup Start **Revision ID:** Item Name: Blade **Start Date:** 07/11/2012 **Start Qty: 10.00** *10* **Cust Item ID: Required Date:** 21/11/2012 Req'd Qty: 10.00 **Customer:** Reference: Run Approvals: Process Plan: _____ Date: ____ Tooling: Date: Stop _____ Date: SPC (Y/N): Date: Sequence ID/ Operation Set Up/ Tool ID Tool # Plan Accept Reject Reject Insp. **Work Center ID Description Run Hours** Code Qty Qty Number Stamp 170 QC14- Inspect Spray Paint 0.00 *170* Memo 0.00 Quality Control Identify as per dwg & Stock Location 138 180 0.00 *120* Packaging 0.00 Memo Packaging ***IDENTIFY AS PER APICAL MPP-120 BY STAMPING P# AND REV*** 190 QC21- Final Inspection - Work Order Release 0.00 *100* 0.00 Memo Quality Control

NCR:	Yes	1	No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA:	Date:	

							-		QA Closed:	Date:	
Work Orde	er:				DISPOSITION			AGAINST DE	PARTMENT	/PROCESS	
Part N							Engineering Quality Other				
Root				Descri	iption of work order update	Initial	Ad	ction	Sign &		
Cause	Date	Step	Qty		or Non-conformance	Chief Eng	Desc	cription	Date	Verification	QC Inspector
Doc/Data Equip/Tooling Operator											
Material											
Setup				1]	•			
Other											
Process											
Supplier											
Training		,									
Unapproved											
					F	AULT CATE	GORY				
Landir	ng Gear				General				_		_
	Bendin	g			Bend	Grain			Ovalized		Pressure/Forced
	Centre	Not Conce	ntric to	o/s	BOM/Route	Hardwa	ire		Over/Under	tolerance	Temperature/Cure
	Cracks			L	Broken/Damaged	Inspect	ion Incomplete		Part Incorre	ct	Weld
	Crushe	d/Crimped			Burrs	Instruct	tions Incomplete,	/Unclear	Part Lost/Mi	ssing	Wrong Stock Pulled
	Cuffs				Contamination	Mainte	enance		Part Moved		}
	Heat Treat Countersink				Countersink	Mislabe	eled		Positioned V	Vrong	_
	Inspec	ion Strip ir	Tube		Cut Too Short	Misread	d		Power Loss/	Surge	Other
	Ripples in Bend Drill Holes				Offset					*	
	Torque Waves in Extrusion Drawing				Out of Calibration						
	Turning Sequence Finish				Out of Sequence						
ĺ	Wave/Twist in Tube Folio				Outside	Dimensions					

Picklist Print

• November-07-12 1:23:05 PM

Work Order ID: 92774

646.3315

Parent Item Name: Blade

92774

646 3315

Start Date: 07/11/2012

Required Date: 21/11/2012

Start Qty: 10.00

**

Required Otv: 10.00

Comments:

Parent Item:

IPP REV:A NEW ISSUE 12/11/07 JFS VERIFY BY: JLM

· ···	· · · · ·													
Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status	
MSTEEL-A2- B0 500X1 250		Purchased	No			100	f	20.8716	0.217	2.284211				

MSTFFI -A2-R0 500X1 250 AISI A2 TOOL STEEL BAR, 0.500 X 1.250

Location Loc Qty Loc Code MAT 20.8715789 123250 20.8715789

2012-11-13

Page 1

											DO	QΑ:_	Dat	e: _	
NCR:	Yes	/ No				WORK ORDER NON-C	100	VFORM	MANCE / UPE	DATE	QA Clos	ad.	Dat	· • ·	•
											-		· · · · · · · · · · · · · · · · · · ·	е.	
Work Ord	er:					DISPOSITION			AGAINST DEPARTMENT/PROCESS						
	٠ No. ِ					Rework Scrap Use-as-is Work Order Update	Scrap Machining Small Fab Use-as-is Thermoforming Finishing			Water Jet Prod. Eng. Coor. Rec/Store/Packaging Supplier				Engineering Quality Other	
Root					Descri	ption of work order update		Initial	Acti	ion	Sign 8	Ž.			
Cause		Date	Step	Qty	C	or Non-conformance	Ch	nief Eng	Descr	iption	Date		Verification	1	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved									·						
							AUL	T CATE	GORY						
Landi	Landing Gear Bending Centre Not Concentric to O/S Cracks Crushed/Crimped. Cuffs Heat Treat Inspection Strip in Tube				General Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short		Grain Hardware Inspection Incomplete Instructions Incomplete/Unclear Maintenance Mislabeled Misread			Ovalized Over/Ur Part Inco Part Los Part Mo Position Power L	orrect/Mis ved ed W	ssing /rong		Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other	
		Ripples in	Bend			Drill Holes	1	Offset							

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

Finish

Folio

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DART AEROSPACE LTD	Work Order:	92774
Description: BLADE	Part Number:	646.3315
Inspection Dwg:646.3315 Rev: N/C		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
, 94	± 010	930			Vern	MI-OL
.290	1,002	290			ч	
.256	±,002	.254			ľ	
. 250	±.002	.250			11	
1.817	± 005	1.817			′(
2.46	±,010	2,450			′(
1.192	002	1.192			11	
. 375	±.005	.374			(*	
.325 X30°	+ 115 4 4 46	.325×30°			71	
B: 177	+ 605	15.178			11	
55,60	+ 605	55.6°	,		C-Square	ML-CBB
					0	
		1				
	•					

	$\sim \wedge \sim$	•	(DAO		
Measured by:	on 14	Audited by:	25	Preliminary Approval:	
Date:	12/1/15	Date:	12-11-15	Date:	

Rev	Date	Change	Revised by	Approved
E	10.04.14	Added preliminary approval	KJ	L

			ENG	INE	ERING CHANGE NOTICL NO. 021	• • • • • • • • • • • • • • • • • • •					
1	4 F	PICAL	DWC	N د	D. 646,3300 REV:N/C BY S. HUFF	DATE: 01/05/09 EFFECT ON DWG					
IN	ous	STRIES, INC.	1		ITLE: UPPER CUTTER AS:	γ					
		- , , , , , , , , , , , , , , , , , , ,	APPRO\	√ED BY	ENGR posono MFG and butl QC	EFF! NEXT ORDER					
A-	NSA -ADD -REV		REA	SON	REMOVED RIVETS IN FAVOR OF ADDITIONAL SC	CREWS)					
	SHEET 1, VIEW 646,3301, IS: SHALL BY AN UNCONTROLLED COPY SUBJECT TO THE ALL OF THE ALL										
14	R	601.2765		18	SCREW	MS27039-0819					
10	R	601.1541		18	LOCKNUT	MS21042L08					
9	D	601.2766		3	RIVET	MS20470AD5-18					
8	R	601,2764		.36	WASHER	NAS1149FN832P					
			 	.3301							
	لســــــــــــــــــــــــــــــــــــ	PART NUMBER	L	Υ	DESCRIPTION	MATERIAL/SPECIFICATION					
DOC	UME	ENTS EFFECTED		1DL	☐ INSTALL INSTRUC ☐ ICA ☐ FMS ☐ BDM ☐ MAJOR	CATEGORY DER REVIEW REQUIRED R MINOR O YES MO					

NCR.	Yes	/	Nο

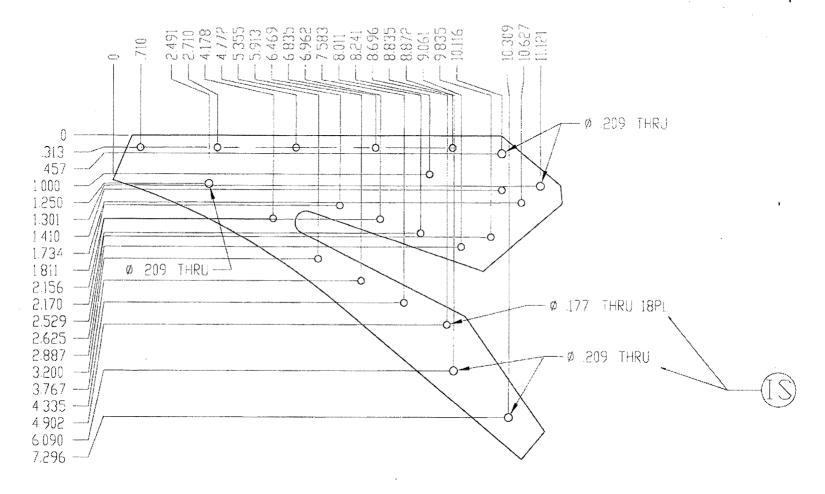
WORK ORDER NON-CONFORMANCE / UPDATE

DQA:	Date:	

								-				QA Closed:	Da	ite:	
Work Ord	er.					DISPOSITION				AGAINST	DE	PARTMENT	/PROCESS		
Part I						Rework Scrap Use-as-is		Skid-tube Crosstube Small Fab Thermoforming Finishing				Water Je Prod. Eng. Cool Rec/Store/Packagin			Engineering Quality Other
NCR I	No.	<u></u>	· · · · · · · · · · · · · · · · · · ·			Work Order Update			Large Fab	Composite		Nec/Stol	Supplier	-	Other
Root					Descri	ption of work order update	lr	nitial	Ac	tion		Sign &			
Cause		Date	Step	Qty	C	or Non-conformance	Chi	ef Eng	Desc	ription		Date	Verificatio	'n	QC Inspector
Doc/Data															
Equip/Tooling															
Operator															
Material															
Setup															
Other															
Process															
Supplier			1												
Training															
Unapproved															
						F	AUL	T CATE	GORY						
Landi	ng (Gear				General						_			_
:		Bending				Bend		Grain				Ovalized			Pressure/Forced
		Centre No	ot Concer	ntric to	o/s	BOM/Route		Hardwa	ire			Over/Under	tolerance		Temperature/Cure
		Cracks				Broken/Damaged		Inspecti	ion Incomplete			Part Incorre	ct		Weld
		Crushed/0	Crimped.			Burrs		Instruct	ions Incomplete/	Unclear	Г	Part Lost/M	issing		Wrong Stock Pulled
		Cuffs				Contamination	П	Mainte	enance			Part Moved			•
		Heat Trea	it			Countersink	П	Mislabe	eled			Positioned V	Vrong		
		Inspection	n Strip in	Tube		Cut Too Short	П	Misread	d			Power Loss/	'Surge		Other
		Ripples in	Bend			Drill Holes		Offset				-			
		Torque W	aves in E	xtrusio	n	Drawing		Out of (Calibration						
		Turning S	equence			Finish	П	Out of S	Sequence						
	Wave/Twist in Tube					Folio	П	Outside	Dimensions						

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SHEET 3, SECTION VIEW A-A, IS:



SECTION A-A 36

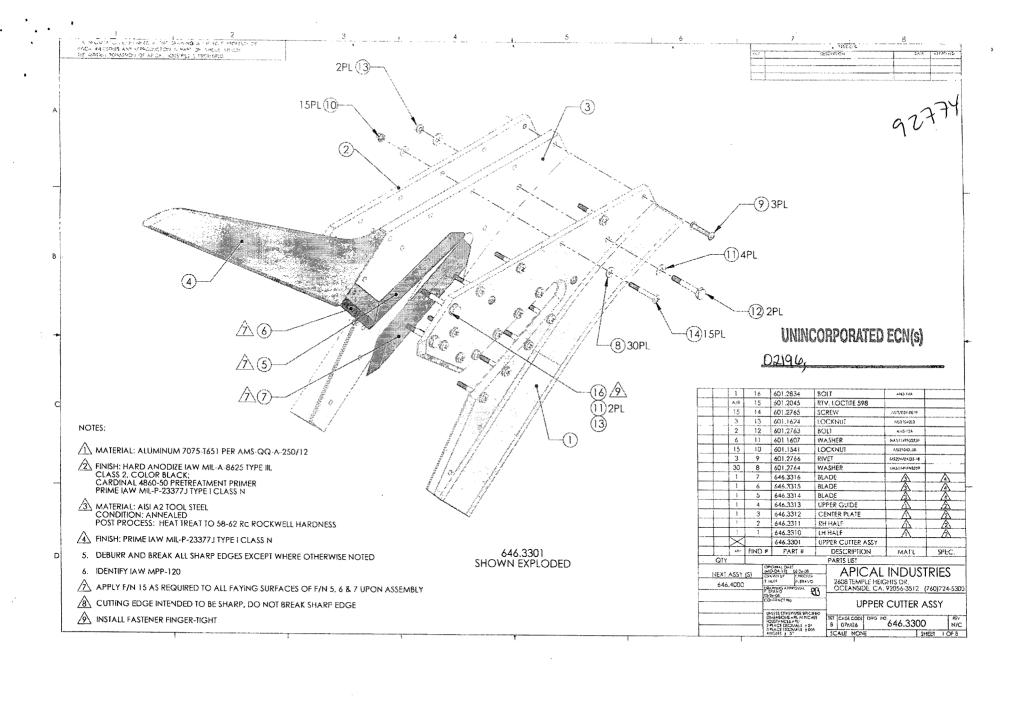
FINITO PART NUMBER QTY DESCRIPTION MATERIAL/SPECIFICATION

								DQA:	Date:				
NCR:	Yes ,	/ No			WORK ORDER NON-C	MANCE / UPDATE	QA Closed:	Date:	•				
Work Orde	er:				DISPOSITION		AGAINST DEPARTMENT/PROCESS						
Part I	_				Rework Scrap Use-as-is Work Order Update]	Skid-tube Crosstube Small Fab Finishing Composite	Pro Rec/Stor	Engineering Quality Other				
Root					Description of work order update	Initial	Action	Sign &					
Cause		Date	Step	Qty	or Non-conformance	Chief Eng	Description	Date	Verification	QC Inspector			
Doc/Data													
quip/Tooling													
Operator													
Material													
Setup													

	FAULT CATEGORY											
Landing	Gear	General						_				
	Bending	Bend		Grain		Ovalized		Pressure/Forced				
	Centre Not Concentric to O/S	BOM/Route		Hardware		Over/Under tolerance		Temperature/Cure				
	Cracks	Broken/Damaged		Inspection Incomplete		Part Incorrect		Weld				
	Crushed/Crimped.	Burrs		Instructions Incomplete/Unclear		Part Lost/Missing		Wrong Stock Pulled				
	Cuffs	Contamination		Maintenance		Part Moved						
	Heat Treat	Countersink		Mislabeled		Positioned Wrong		_				
	Inspection Strip in Tube	Cut Too Short		Misread		Power Loss/Surge		Other				
	Ripples in Bend	Drill Holes		Offset								
	Torque Waves in Extrusion	Drawing		Out of Calibration				,				
	Turning Sequence		Out of Sequence									
	Wave/Twist in Tube	Г	Outside Dimensions									

Other
Process
Supplier
Training
Unapproved

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NCR:	·													
											QA Closed:	Date	2:	
Work Orde	or.				•	DISPOSITION			AGAIN	ST DE	PARTMENT	/PROCESS		
Part No						Rework Scrap Use-as-is Work Order Update						Water Jet d. Eng. Coor. e/Packaging Supplier	Engineering Quality Other	
Root Desc						ription of work order update		Initial Action			Sign &			
Cause		Date	Step	Qty	0000	or Non-conformance	1	ief Eng	Description		Date	Verification	QC Inspector	
oc/Data quip/Tooling Operator Material etup Other Process upplier Training														
		·				F	AUL	T CATE	GORY			•		
Landi	ng (Gear				General								
	Bending Centre Not Concentric to O/S Cracks					Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes Drawing		Instruct Mainte Mislabe Misread Offset	ion Incomplete ions Incomplete/Unclear enance eled		Ovalized Over/Under Part Incorred Part Lost/Mi Part Moved Positioned V Power Loss/	ct issing Vrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other	
	Turning Sequence Finish							Out of Sequence						

Outside Dimensions

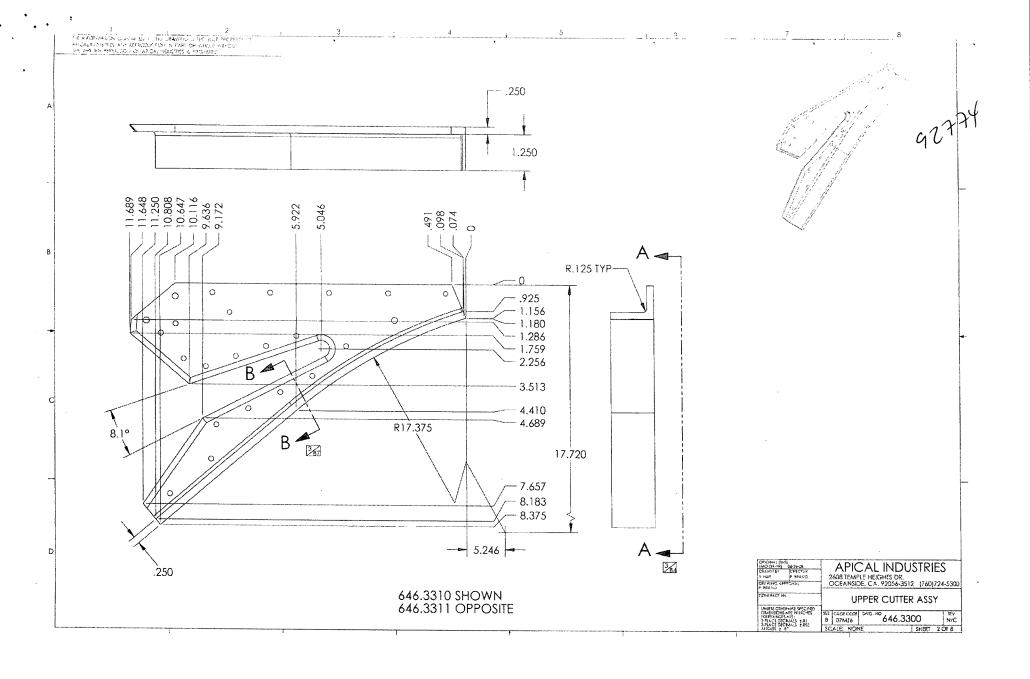
DQA:

Date:

Wave/Twist in Tube

Folio

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OA Classel. Date	CR: Yes / No WORK ORDER NON-CONFORMANCE / UPDATE .												
QA Closed: Date	e:												
Work Order: DISPOSITION AGAINST DEPARTMENT/PROCESS													
Rework Skid-tube Crosstube Water Jet	Engineering												
Part No Scrap Machining Small Fab Prod. Eng. Coor.	Quality												
Use-as-is Thermoforming Finishing Rec/Store/Packaging	Other												
NCR No Work Order Update Large Fab Composite Supplier													
Root Description of work order update Initial Action Sign &													
Cause Date Step Qty or Non-conformance Chief Eng Description Date Verification	QC Inspector												
Doc/Data													
Equip/Tooling													
Operator													
Material													
Setup Setup													
Other													
Process													
Supplier													
Training													
Unapproved FAULT CATEGORY	<u> </u>												
Landing Gear General													
Bending Bend Grain Ovalized	Pressure/Forced												
Centre Not Concentric to O/S BOM/Route Hardware Over/Under tolerance	Temperature/Cure												
Cracks Broken/Damaged Inspection Incomplete Part Incorrect	Weld												
Crushed/Crimped Burrs Instructions Incomplete Part Lost/Missing	Wrong Stock Pulled												
Cuffs Contamination Maintenance Part Moved													
Heat Treat Countersink Mislabeled Positioned Wrong													
Inspection Strip in Tube Cut Too Short Misread Power Loss/Surge	Other												
Ripples in Bend Drill Holes Offset	Totale												
Torque Waves in Extrusion Drawing Out of Calibration													

Out of Sequence

Outside Dimensions

DQA:

Date:

Turning Sequence

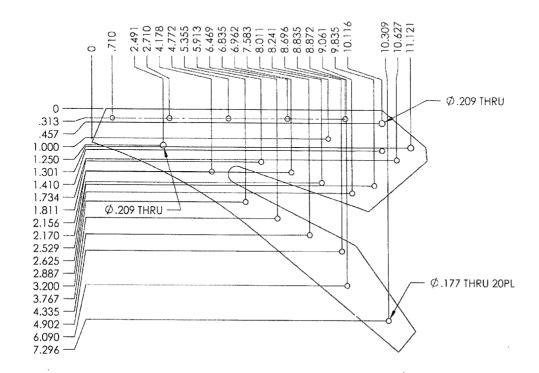
Wave/Twist in Tube

Finish

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

927



.200 X 45.0° TYP (.250)

SECTION B-B 22

SECTION A-A 3

OPENIAL DATE (MC-DA-FP) 08-Z2-05 (MC-DA-FP) 08-Z2-05 (MCF) CHCCER (MCF) P ERAVO (MCF) P ERAVO (MCF) P ERAVO	APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92055-3512 (760)724-53	00
CONSACTIO	UPPER CUTTER ASSY	
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										DQA:	Date	::
NCR: Y	es / No				WORK ORDER NON-	CON	FORM	/ANCE / UP	DATE			•
				-	<u></u>					QA Closed:	Date	:
Work Orde	r:				DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
					Rework	7		Skid-tube	Crosstube	Water Jet		Engineering
Part N	0.				Scrap	Machining Small Fab Prod. Eng. Coor. Qu						Quality
				······	Use-as-is]	Therm	noforming	Finishing	re/Packaging	Other	
NCR N	0				Work Order Update	╛┃	Large Fab Composite Supplier					
Root		,		Descri	iption of work order update	In	itial	Ac	ction	Sign &		
Cause	Date Step Qty or Non-conformance				Chie	ef Eng	Desc	cription	Date	Verification	QC Inspector	
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rocess												
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raining	_					ļ				ļ.		
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						FAULT	CATE	GORY				
Landin F	_				General				<u></u>	٦	Г	_
	Bending			. -	Bend	\vdash	Grain		_	Ovalized	_	Pressure/Forced
	Centre No	ot Conce	ntric to (D/S	BOM/Route		Hardwa			Over/Under	⊢	Temperature/Cure
1	Cracks				Broken/Damaged	\vdash		on Incomplete		Part Incorre	<u> </u>	Weld
<u> </u>	Crushed/	Crimped.		<u></u>	Burrs	-		ions Incomplete,	/Unclear	Part Lost/M		Wrong Stock Pulled
	Cuffs			<u> </u>	Contamination	\vdash	Mainte			Part Moved		
L	Heat Trea			_	Countersink	 - -	Mislabe	led	·	Positioned \		_
	Inspectio	n Strip in	Tube		Cut Too Short	<u></u> Ш'	Misreac	I	L	Power Loss/	/Surge	Other
1	Rinnles in	Rend		i	Drill Holes	1 1	Offcot					

Out of Calibration
Out of Sequence

Outside Dimensions

Turning Sequence

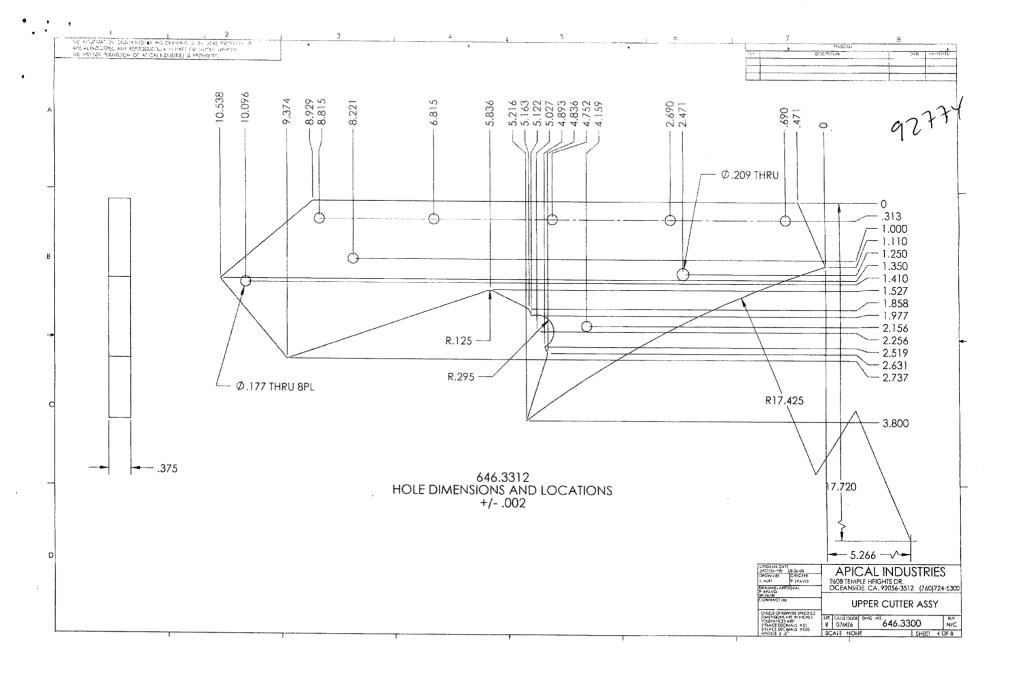
Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

Finish Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G



											DQA:	Date:	
NCR:	Yes	/ No				WORK ORDER NON-	100	NFORM	ANCE / UP	DATE			•
											QA Closed:	Date:	
Work Ord	or.					DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
Part No. NCR No.						Rework Scrap Use-as-is Work Order Update	Scrap Machining Small Fab Use-as-is Thermoforming Finishing			Finishing	Pro	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root					Descri	ption of work order update		Initial	Ac	tion	Sign &		
Cause		Date	Step	Qty	(or Non-conformance	Ch	nief Eng	Desc	ription	Date	Verification	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved													
<u></u>							AUL	T CATE	GORY				
Landi	Bending Centre Not Concentric to O/S Cracks Crushed/Crimped. Cuffs Heat Treat Inspection Strip in Tube					General Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short		4 '	on Incomplete ions Incomplete/ nance led	Unclear	Ovalized Over/Under Part Incorre Part Lost/M Part Moved Positioned V	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other	
	Ripples in Bend					Drill Holes	1	Offset					

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

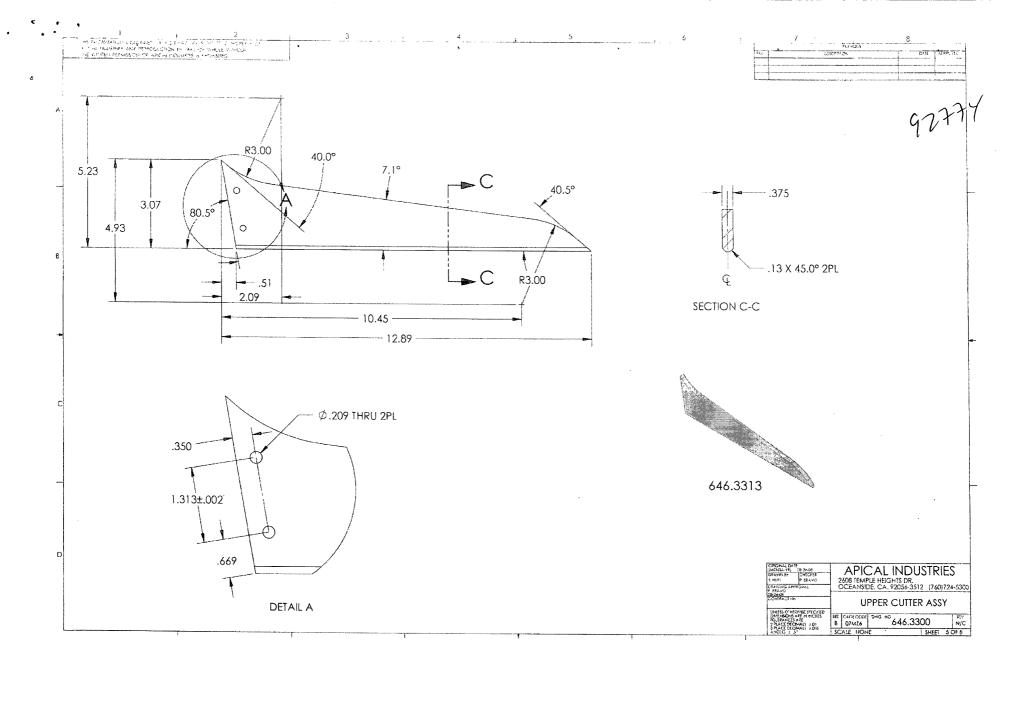
Torque Waves in Extrusion

Drawing

Finish

Folio

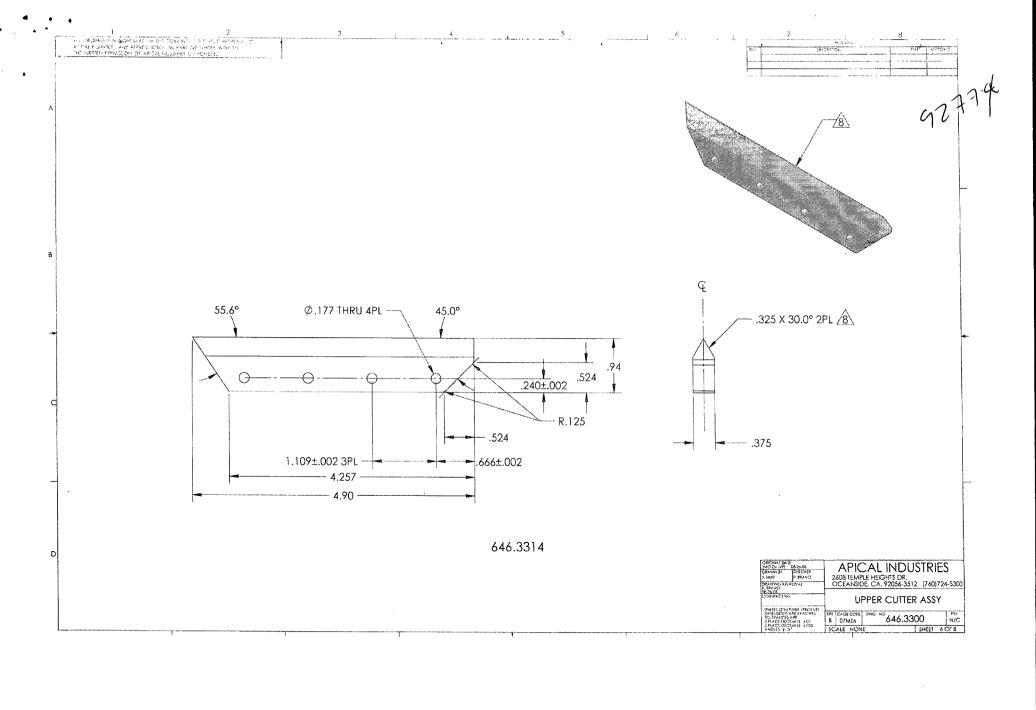
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			DQA:
NCR:	Yes / No	WORK ORDER NON-CONFORMANCE / UPDATE	
			QA Closed:

	,									QA Closed:	Date	a:	
Work Orde	ır·				DISPOSITION				AGAINST DE	PARTMENT	/PROCESS		
Part N					Rework Scrap	Scrap Machining Small Fab Prod. Eng. Coor.						Engineering Quality	
NCR N	0	······································			Use-as-is Work Order Update							Other	
Root				Descri	ption of work order update	In	itial	Ac	tion	Sign &			
Cause	Date	Step	Qty	(or Non-conformance	Chie	ef Eng	Desc	cription	Date	Verification	QC Inspector	
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	Bending Centre Not Concentric to O/S Cracks				Bend BOM/Route Broken/Damaged		Grain Hardware Inspection Incomplete			┥ ⊢ ∶		Pressure/Forced Temperature/Cure Weld	
	Crushed/Crimped. Cuffs Heat Treat				Burrs Contamination Countersink			ions Incomplete/ nance led	/Unclear	Part Lost/Missing Wrong Stock Pulle Part Moved Positioned Wrong			
<u> </u>	Inspection		Tube		Cut Too Short	 	Misreac			Power Loss/		Other	
ļ	Ripples in Bend Drill Holes					\vdash	Offset			!			
	Torque Waves in Extrusion Drawing					-	Out of Calibration						
ļ	Turning Sequence Finish						Out of Sequence						
	Wave/Twist in Tube Folio						Dutside	Dimensions					

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									DQA:	Date:	
NCR: Y	res / No				WORK ORDER NON-C	ONFO	RMANCE / UP	PDATE			•
									QA Closed:	Date:	
Work Orde	er:				DISPOSITION			AGAINST DE	PARTMENT	/PROCESS	
Part No					Rework Scrap Use-as-is Work Order Update	Scrap Machining Small Fab Use-as-is Thermoforming Finishing			Pro	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root				Descrip	ption of work order update	Initial	Ad	ction	Sign &		
Cause	Date	Step	Qty	C	or Non-conformance	Chief Er	ig Desc	cription	Date	Verification	QC Inspector
Doc/Data											
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					F	AULT CA	regory		<u>.</u>	-	
Landir	ng Gear				General			_	-		-
	Bending				Bend	Grain	1		Ovalized		Pressure/Forced
	Centre No	ot Concer	ntric to (D/S	BOM/Route	Hard	ware		Over/Under	tolerance	Temperature/Cure
	Cracks				Broken/Damaged	Inspe	ction Incomplete		Part Incorre	ct	Weld
	Crushed/	Crimped.			Burrs	Instru	ictions Incomplete,	/Unclear	Part Lost/M	issing	Wrong Stock Pulled
	Cuffs				Contamination	Mair	itenance		Part Moved		
	Heat Trea	it			Countersink	Misla	beled		Positioned \	Wrong	_
	Inspectio	n Strip in	Tube	. [Cut Too Short	Misre	ead		Power Loss,	/Surge	Other
	Ripples in	Bend			Drill Holes	Offse	t				

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

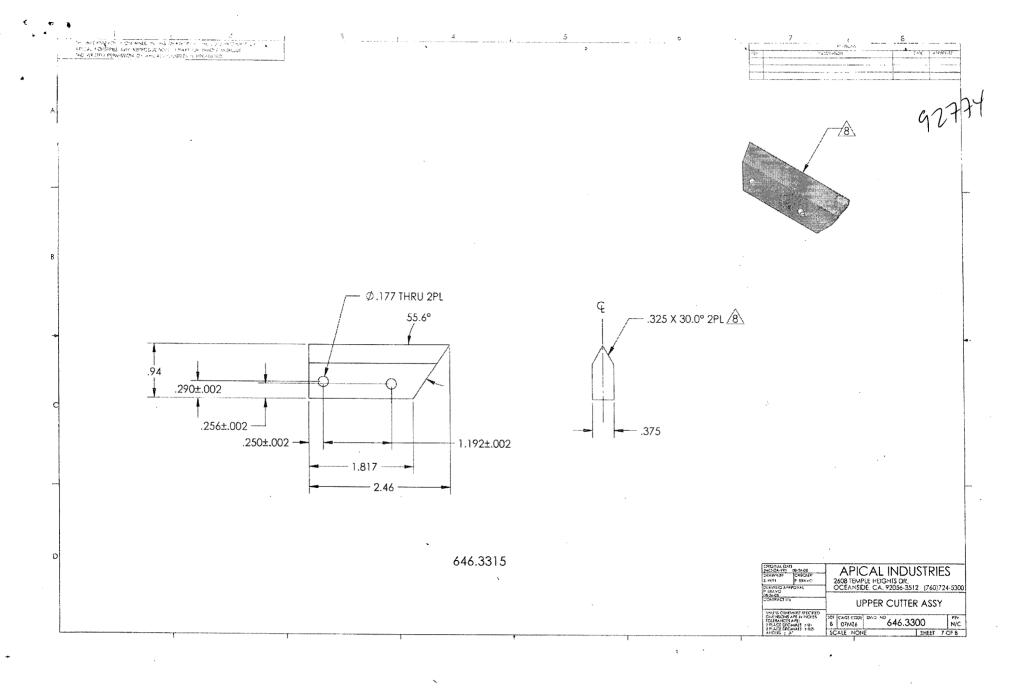
Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

Finish Folio

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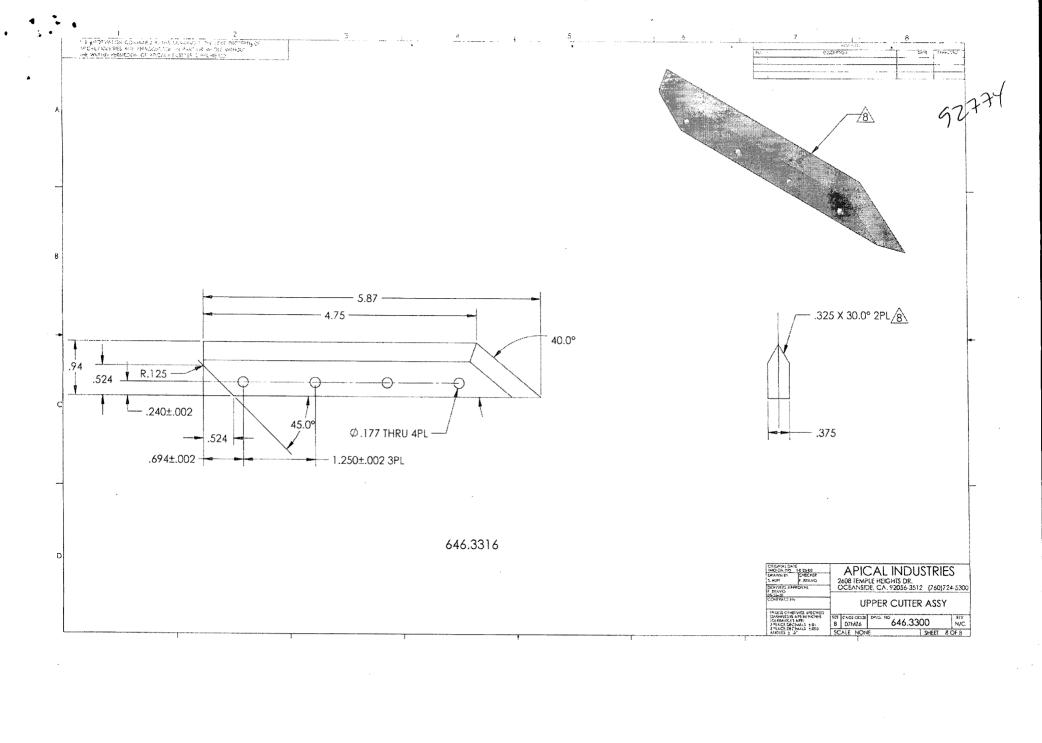


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NCR:	Yes /	No		
			 .	

												DQA:	Date	: :	
NCR:	Yes	/ No					WORK ORDER NON-C	O	NFOR!	MANCE / UP	DATE			•	_
			·									QA Closed:	Date	e:	_
Nork Ord	er:					1	DISPOSITION				AGAINST DE	PARTMENT,	PROCESS		
Part I							Rework Scrap Use-as-is	Skid-tube Crosstube Machining Small Fab Thermoforming Finishing			Small Fab	Water Jet Engineering Prod. Eng. Coor. Quality Rec/Store/Packaging Other			
NCR No.							Work Order Update]	Large Fab Composite Supplier						
Root					Descr	ript	tion of work order update		Initial Action Sign &						1
Cause		Date	Step	Qty		or	Non-conformance	Ch	ief Eng	Desc	ription	Date	Verification	QC Inspector	
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		Centre No	t Concer	ntric to (o/s	_	BOM/Route		Hardwa			Over/Under	tolerance	Temperature/Cure	
		Cracks			<u> </u>	ا_	Broken/Damaged		1	on Incomplete		Part Incorred	 	Weld	
		Crushed/C	Crimped.		ļ	-	Burrs	L	Instruct	ions Incomplete/	Unclear	Part Lost/Mi	ssing	Wrong Stock Pulled	
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	Heat Treat Countersink								Mislabe			Positioned V			
	Inspection Strip in Tube Cut Too Short								Misread	I		Power Loss/	Surge	Other	
	Ripples in Bend Drill Holes								Offset					,	
	Torque Waves in Extrusion Drawing							Out of Calibration							
		Turning Se					inish		Out of Sequence						
Wave/Twist in Tube Folio							Folio		Outside	Dimensions					

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DQA:	Date:	
D Q, 1.	Dutc.	

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

										QA Closed:	Date	2:
Work Orde	۳۰	*			DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
Part N					Rework Scrap	Scrap Machining Small Fab Prod. Eng. Coor.						
NCR N	0				Use-as-is Work Order Update							Other
Root				Descri	ption of work order update	Initial Action Sign &						
Cause					or Non-conformance	Chief	Eng	Desc	ription	Date	Verification	QC Inspector
Ooc/Data quip/Tooling		·										
Operator Material												·
Setup Other									•			San L
Process	<u> </u>									·		المعرب إلى
Supplier												
Training	_											
Jnapproved		1,	<u> </u>	<u> </u>		AULT C	ATEC			l		
Landin	ig Gear		· · · · · ·		General	AULIC		JORT				
	Bending				Bend	Gr	ain			Ovalized	Г	Pressure/Forced
Ì	Centre N	ot Conce	ntric to	o/s	BOM/Route		rdwai	re		Over/Under	tolerance	Temperature/Cure
	Cracks				Broken/Damaged	\vdash		on Incomplete		Part Incorre	⊢	Weld
Ī	Crushed/	Crimped.			Burrs		-	ions Incomplete/	'Unclear	Part Lost/Mi		Wrong Stock Pulled
ſ	Cuffs		Contamination				ainte	nance		Part Moved	- L	
` [Heat Treat Countersink				Countersink	Mi:	slabe	led		Positioned V	Vrong	
Inspection Strip in Tube Cut Too S				Cut Too Short	Mi:	sread			Power Loss/	Surge	Other	
. [Ripples in Bend Drill Holes				Off	fset						
`[Torque Waves in Extrusion Drawing				Ou	t of C	Calibration					
	Turning Sequence Finish					Ou	t of S	equence				
1	Wave/Twist in Tube				Folio	Ou	tside	Dimensions				

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METCOR INC.

560 BOUL. ARTHUR-SAUVÉ ST-EUSTACHE, QC J7R 5A8 Tel: 450-473-1884 / Fax: 450-491-5498

Recu de Livraison.

Order	Shipper	Shipping Seq.
181377	1	66593

Shipped Complete

Customer <u>215</u> **DART AEROSPACE**

1270 ABERDEEN HAWKESBURY, ON K6A 1K7

Ph: 613-632-5200 Fax: 613-632-1053 **Shipped To: DART AEROSPACE** 1270 ABERDEEN

HAWKESBURY, ON K6A 1K7

Ph: 613-632-5200 Fax: 613-632-1053

Purchase Ord	der Number	Customer Shipper No.	Material Type	Order Date	Carrier
PO18	452		A2	2012/11/21	PURO
Quantity	Part No. /	Part Name / Part Description	on		Pounds

(10) RÉFÉRENCE 92773

MATERIAL: AISI A2 TOOL STEEL

(10) 646,3315 BLADE REFERENCE 92774

MATERIAL: AISI A2 TOOL STEEL

(10) 646.3316 BLADE **RÉFÉRENCE 92775**

MATERIAL: AISI A2 TOOL STEEL

CONTENANT: 1 BOÎTE DE CARTON

Container Type	# Of Containers	Container Comments
BOITE DE CARTON	1	

CERTIFICAT

	Quantity Shipped:	30
PACKING	Pounds Shipped:	9,00
Admito	Quantity Remaining:	0
	Pounds Remaining:	- 0,00

CERTIFICAT		
	Quantity Shipped:	30
	Pounds Shipped:	9,00

Signature:

Date:

Shipped ON: 2012/11/26

F-050-06 Rev. B

560, boul. Arthur-Sauvé, St-Eustache (Québec) J7R 5A8 Tél. 450 473-1884 Télécopieur/Fax administration 450 491-5498 Télécopieur/Fax production 450 491-6454

Certificat de Conformité
Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
181377	1

CLIENT / customer 215 DART AEROSPACE 1270 ABERDEEN HAWKESBURY

ON KBA 1K7

UVRÉ À / shipped to: DART AEROSPACE 1270 ABERDEEN HAWKESBURY

ON K8A 1K7

COMMANDE DU CLIENT customer po	BON DE LIVRAISON DU CLIENT	MATÉRIEL	CODE DE TRAITEMENT	NUMÉRO DE LOT
	customer shipper no.	material	mat'l heat code	lot number
PO18452		A2		

SPÉCIFICATIONS DU PROCÉDÉ

processing specifications

VAC HARDEN

HARDEN AND TEMPER

EXIGENCE / requirement | SPÉCIFICATIONS / specifiedTESTS EXÉCUTÉS / performed | RÉSULTATS DE TESTS / results |
TARDNESS 58 - 62 HRC 5 60.0 - 61.0 HRC

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
30	9	646.3314 BLADE (10) RÉFÉRENCE 92773 MATERIAL: AISI A2 TOOL STEEL
		(10) 646.3315 BLADE REFERENCE 92774 MATERIAL: AISI A2 TOOL STEEL
		(10) 646.3316 BLADE RÉFÉRENCE 92775 MATERIAL: AISI A2 TOOL STEEL
garan a s amanya gan ay sa sa	ne mjenjen ⁷⁷ simm en nskija.	CONTENANT: 1 BOÎTE DE CARTON

COMMENTAIRES / comments

CERTIFIÉ par / Certified by:

METCOR

DATE: 2012-11-26

2) mos



Dart Aerospace Ltd. 1270 Aberdeen Street Hawkesbury, ON K6A 1K7

Tel: 613 632 9577 Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO18452

Purchase Order Date 11/20/12 PO Print Date 11/20/12

Page Number 1 of 2

Order From:

VC-MET004

METCOR INC. 560 BOUL. ARTHUR SAUVE SAINT-EUSTACHE, QC J7R 5A8 CA

Contact Name

Vendor Phone

450 473 1884

Vendor Fax

450 491 5498

Vendor Account Nbr

Buyer

Chantal Lavoie

Requisition Nbr

Tax Resale Nbr

10127-2607 Net 30

Terms Currency

CAD

FOB

Destination-Collect

Ship To:

DART AEROSPACE LTD

1270 ABERDEEN

HAWKESBURY, ON K6A 1K7

CANADA



Line Nbr	Reference Revision ID Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable Unit o	Req Qty/ of Measure	Ship Method	Unit Price	Extended Price
1 92	773	646.3314 BLADF	12/07/12 Yes	10.00	FedEx PI collect	\$10.0000	\$100.00

Special Israe:

MATERIAL: AISI A2 TOOL STEEL

CONDITION ANNEALED

HEAT TREAT TO 58-62 RC ROCKWELL

HARDNESS

DETAIL C OF C REQUIRED

646.3315 BLADE

12/07/12

10.00 FedEx PI collect

\$10.0000

\$100.00

Yes

Special Inst:

MATERIAL: AISI-A2 TOOL STEEL

CONDITION ANNEALED

HEAT TREAT TO 58-62 RC ROCKWELL

HARDNESS

DETAIL C OF C REQUIRED

No substitution or deviation without consent.

Certificate of Conformity or Material Certification required / YES NO

Change Nbr: -

Change Date: 11/20/12

METCOR INC. 560 BOUL. ARTHUR-SAUVÉ ST-EUSTACHE, OC, J7R 5A8

Tel: 450-473-1884 / Fax: 450-491-5498

Certificat de Conformité Détaillé

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
181377	1

CLIENT / customer 215
DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to: DART AEROSPACE 1270 ABERDEEN HAWKESBURY

ON K6A 1K7

Operation	Temp. spécifiée Specified Temp	Temps de trempe Spécifié Specified Soak Temp	Atmosphere	Carbone Carbon Potential	Q-Media Q-Temp	Four # Furnace #	Date Départ Start Date	Heure d'entrée Time In	Heure de sortie Time Out	Date Complétée Date complete
5.00 VAC HARDE	1	1 hrs 30 minutes	VAC		AZOTE					
6.00 TEMPER	400°F	2 hrs	air			655				
7.00 TEMPER 2	400°F	2 hrs	air			655				
8.00 HARDN INS	I									
9.00 FINAL INSP							11-26-2012			11-26-2012

COMMENTAIRES / comments

Le traitement thermique a été fait en utilisant des équipements en conformité avec la spécification demandée.

Toutes les opérations de traitement thermique ont été faites en conformité avec les requis de la spécification demandée et toutes les vérifications et les tests demandées ont été faites et documentés.

Aucun changement ou dérogation n'a été faite par rapport au traitement thermique demandé.

On certifie que le matériel a été fabriqué, échantillonné, testé et inspecté en accord avec les spécifications du matériel et le bon de commande et le matériel rencontre les exigences spécifiés.

All the heat treatment processing performed on this order was accomplished using heat treatment equipment compliant with the requested heat treatment specification.

All the heat treatment operations were accomplished in accordance with the requested/required heat treatment specification and all required verifications test have been performed and documented.

No unauthorized changes or deviations to required heat treatment specifications or procedures have been performed. We certify that the material was manufactured, sampled, tested and inspected in accordance with the material specification and the purchase order and was found to meet the requirements.

APPROUVÉ par / Approved by:	Isabel Oter C	DATE: 2012-11-26
	12	J

/ Nous certifions que toute l'information comprise sur ce rapport est exacte et conforme aux requis du client./We certify that all the information on this report is exact and in accordance with the order requirements.

F-000-20 REV.B

Page 2 / 2